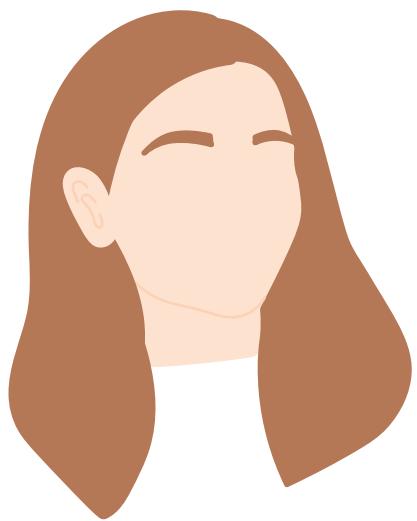


# UX UI DESIGNER

## PORTFOLIO

MAJA NYBERG



# Hi, I'm Maja.

I am an amateur photographer with a passion for design, currently pursuing a MSc in Interaction Design and Technology at Chalmers in Gothenburg.

With a background in software engineering, I have a good understanding of the technical aspects of a digital product, but UX design is where my heart's at. My dream is to become a UX designer who by her work makes a difference to the world, through design.

I have a passion for music and I have played various instruments since I was eight years old. Despite the dreams of my flute teacher, I enjoy the piano the most!

Now, with my master studies coming to an end in the summer of 2020, I'm looking for new challenges in the role of a UX Designer.

Don't hesitate to contact me!

*Maja Nyberg*



# PROJECTS

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*Autumn 2019*

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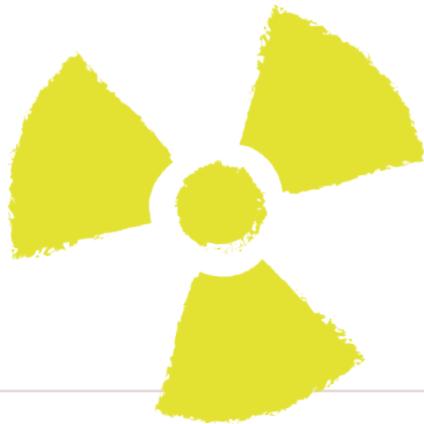
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# SAVE THE CITY FROM RADIATION

An interactive and pedagogical game to teach and engage teenagers in natural sciences.

Autumn 2019

[www.idxpo.se/2019](http://www.idxpo.se/2019)



## THE PROBLEM

In the course *Interaction Design Project*, students from Chalmers and Gothenburg University showcased 12 projects on the theme "Showing the Invisible" at the science centre Universeum in Gothenburg. The ambition of the project was to show that Interaction Design can play an important role in the innovation process, design work and implementation of new systems at science centres.

*Save the City from Radiation* is a game about three types of radiation - alfa, beta and gamma - and which materials they can penetrate. It is a fun and educational game with the purpose to increase the interest of natural science among children and teenagers within the age of 12 to 16.

## TIMELINE

7 weeks

## THE TEAM

Developers  
Designer

## TOOLS

Adobe Illustrator  
Unity

## MY ROLE

Designer.

As the designer of the team, I was responsible for all visual design. Early on in the project, I created a paper prototype to develop and evaluate the gameplay to make it balanced. Additionally, I designed and coded the project's website.

## WHAT I DID

Sketching  
Paper prototyping  
Gameplay design  
Visual design  
User testing  
Project website



## UNDERSTANDING THE USERS

The intended target group for this project was children between the ages of 12 to 16, because it is known that the interest for natural sciences begin to decrease at this age.

According to the Swedish National Agency for Education, teenagers in high school are expected to learn about particle radiation. Included in the central content is to learn how to use physical models to describe and explain the appearance of particle radiation and electromagnetic radiation, as well as the impact of radiation on living organisms.

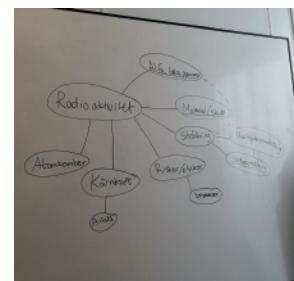
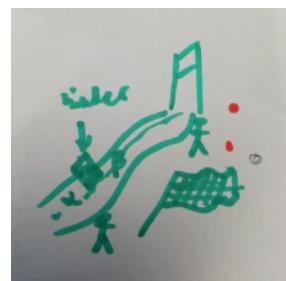
## DEFINING THE TASK

Invisible things such as black wholes, germs and radiation were discussed during a brainstorming session. The team quickly decided to work with radiation as the invisible aspect of the project, since it was a part of the curriculum for high school students. The ideation and prototyping phase began by using the methods Crazy8 and Skewing.

All ideas generated had one thing in common - two in different ways visualize how radiation can be blocked as well as the difference between the three types of radiation.

The final idea was to create a game called *Save the city from radiation*, where the users should try to block radiation beaming from the radiation before it reaches the surrounding city and forest. It was at this stage unclear how the game was to be implemented - if it could be a physical game using LED strips and RFID-tags or if it could be a digital table top.

## SKETCHES



## DECIDING ON WHICH IDEA TO DEVELOP

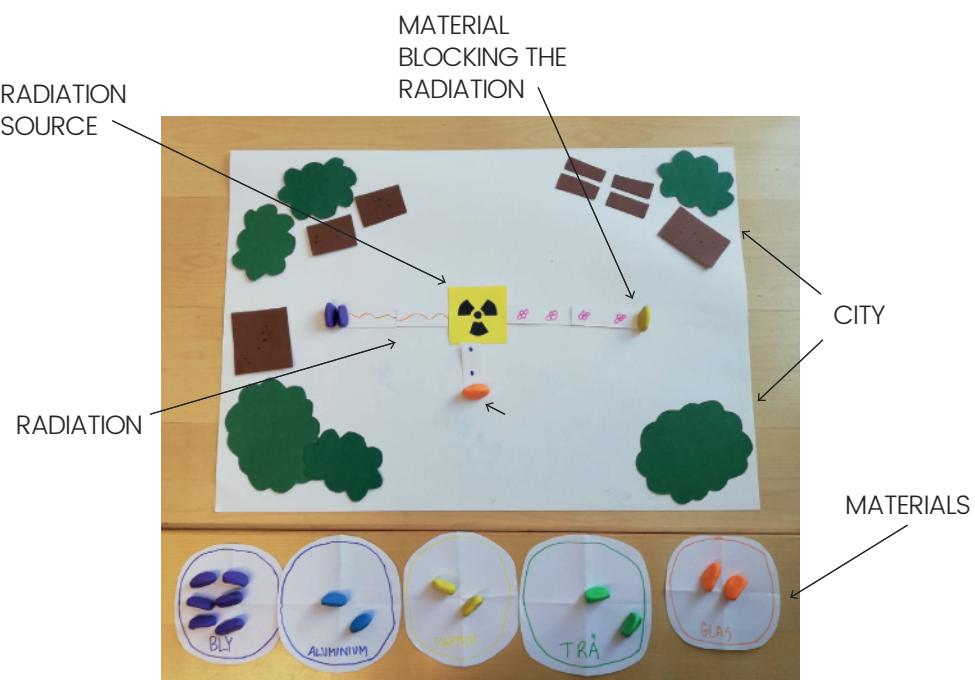
With our supervisor, we discussed several technical solutions we could choose among. It could be a digital tabletop where the users could put physical materials to block the radiation. It could also be a physical game, where the radiation was visualized with LED-strips and the materials contained RFID-tags read from below the table.

The decision was to go with a digital tabletop game because a digital game would give a more correct representation of the radiation compared to a physical game. After some research, this decision was discarded due to technical limitations. We wanted to have several devices (representing the materials) blocking the radiation simultaneously, which wasn't possible because the technology could only track two devices. It was therefore decided to implement the game for larger screens and use a Wii-mote as controller.



## PAPER PROTOTYPING

While the developers began to implement basic functionality, I created a simple paper prototype which was used to figure out the rules of the game, how many levels of difficulty there should be and if it the game could be cooperative.



## DIGITAL PROTOTYPE

The designs of the digital game were created in Illustrator based on the layout of the paper prototype as well as the result of testing and evaluating the paper prototype.

The digital prototype has the materials on the left side of the screen instead of the bottom of the screen to make use of the screen space. The paper prototype did not have a clear line visualizing where the city actually began, and where the radiation had to be blocked in order to win the game. This was added in the digital prototype and visualized as a fence surrounding the area around the radiation source.



## USER TESTING

The paper prototype was tested at Universeum by 5 groups of 3-4 teenagers. They also had a chance to try out the first level on the digital prototype.

The feedback from the test participants was overall positive. They liked that it was a trial-and-error game where they learn gradually by advancing in level. A few test participants wanted a countdown between each level, to prepare mentally and know when the radiation would start beaming. The test participants cooperated when testing the paper prototype - discussing which material would work best and where to place them.



## FINAL DESIGN

Below are a few examples of the final design. The buttons were added dynamically in Unity, and can therefore not be seen in the pictures below. Between each level was also a screen information the user which level was loading, and which radiation they should look out for.



## EXHIBITION

During the two days of the exhibition , many visitors came and tested our game. However, the majority of visitors were not the intended target group, but instead younger children with their parents and friends. The game was too complex for the children, who didn't quite have the patience and attention span required for a trial-and-error game.

Most of the visitors enjoyed the game but believed it was too difficult because the speed of the radiation beams was too high. Mapping the dynamics of the paper prototype game onto the digital prototype was a challenge, which unfortunately would have been easier with further user testing for the digital prototype.

Although only one could play at a time, many collaborated and discussed tactics with each other. From the beginning, we had thought that we would use two Wii-motes so players could collaborate even more and increase the social aspect. The time limitation for the project was one reason why we did not have the opportunity to implement this, but it was still fun to see that the game gave rise to cooperation anyway.



## KEY LEARNINGS

Target group not present at Universeum.

The visitors at the exhibition were either too young to understand the game, or too old to learn something from the game.

Short attention span at science centers.

The visitors didn't read the surrounding posters to understand how to play - they just wanted to play!

The "How to play" poster did not make much use during the exhibition. Perhaps a short tutorial would have been better.

Difficult to map the paper prototype to digital.

The radiation was beaming too fast, which made the game too difficult. The paper prototype was good for game dynamics and mechanics, but the digital prototype would have benefited from further user testing before the exhibition.

It wasn't as intuitive as we expected.

The game needed to be easier to understand, since the visitors skipped the instructions in pure excitement.

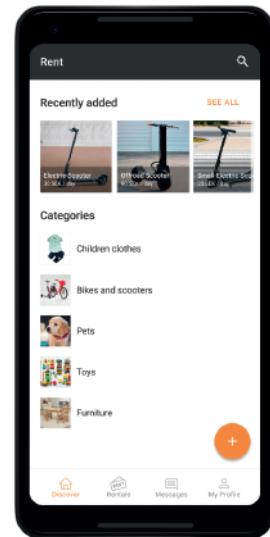


# FAMILY RENT APP



An app that families with children can use to rent things from each other.

Autumn 2019



## THE PROBLEM

In the course, *Mobile Computing - Design and Implementation* the home exam task was to design an application for families with children. The only design requirement was that the app had to adhere to the Android user interface guidelines.

Families typically buy large amounts of clothes, toys, pets, and books, which becomes expensive as some of these things are perhaps only used for a shorter period. A more sustainable solution could be if parents would simply rent what they need for a period, and let other parents rent out things they do not need anymore.

## TIMELINE

5 days

## THE TEAM

Me, myself and I

## TOOLS

Figma

## MY ROLE

Designer

As this was an individual home exam, everything was done by me. I used the requirements from the home exam to define the tasks through sketching and ideating. The result was a high-fidelity prototype in Figma.

## WHAT I DID

Ideation  
Sketching  
High-fidelity prototype  
Wireframes  
Usability testing

**FUNCTIONALITY** The mandatory functionality was predetermined by the teachers in the course. Each student could then add further functionality to develop the app even more.

The mandatory features were to: navigate among available items, search for objects to rent, view the price of an item, see when an item was available for rent, find the shortest and longest period of rent, see pictures of available items and see a short description of an item.

I decided to add functionality where the users could send messages to each other in the app. If they, for example, wanted to contact each other to ask questions about the different items or decide a time to meet up.

The second functionality I decided to add was the possibility to see in which condition the products were in - new, used or well used. The renters could, of course, add further information about the condition in the description of the product.

## REQUIRED CATEGORIES

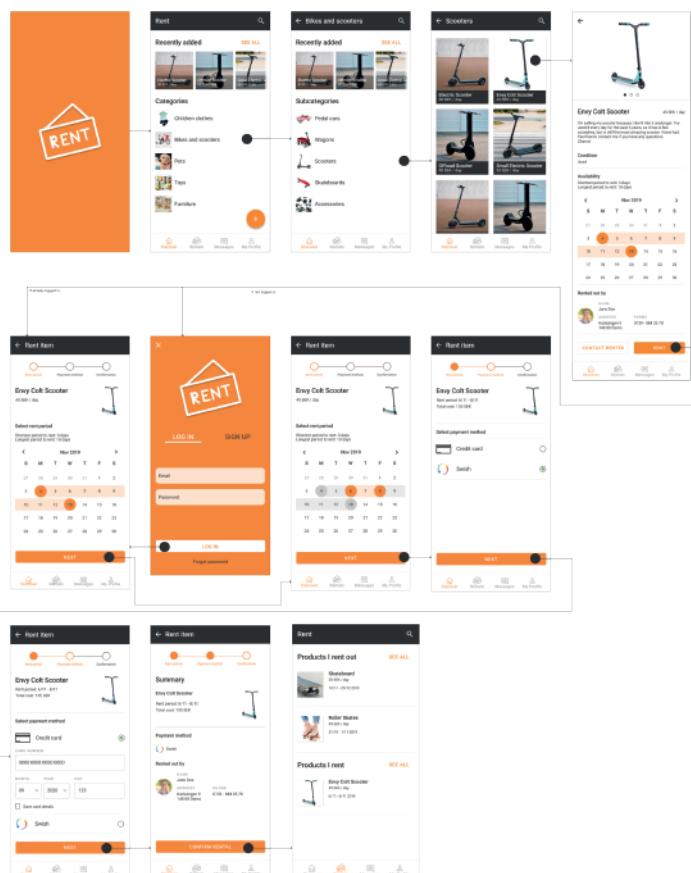
Children clothes  
Bikes and scooters  
Pets  
Toys  
Furniture

## USE CASE

Rent and rent out an "Envy Colt Scooter".

## NAVIGATION FLOW

### RENT ITEM

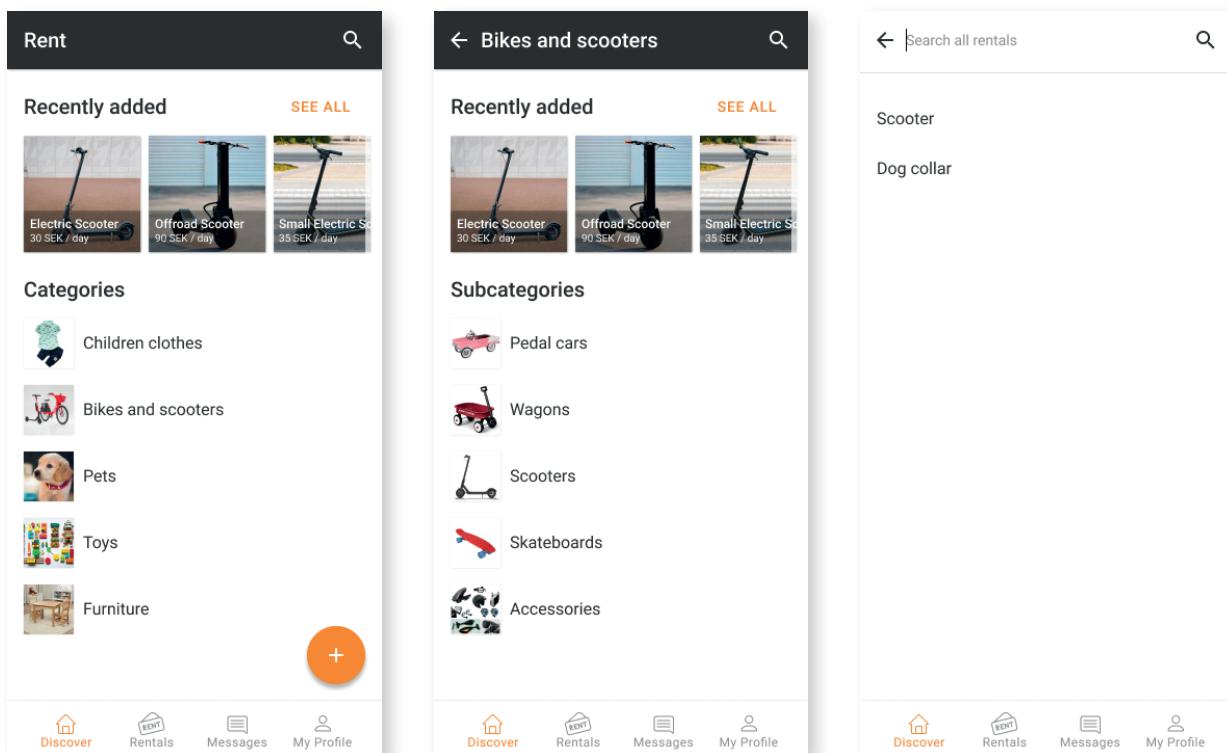


## BROWSE

The bottom navigation is the core navigation of the app. It allows the user to easily navigate between the main destinations in the app - discover, rentals, messages and profile. In line with the *Material Design guidelines* regarding bottom navigation, I have only used 4destinations in the bottom bar, as they suggest between 3 and 5.

The "Discover" tab can be seen as the "home" page of the application. From this tab, the user can do everything - browse for new items, add an item to rent out, and change between the other tabs in the bottom navigation bar.

The recently added items are represented as cards, containing the name, price and picture for one single item. It is possible to scroll among the items, horizontally, in order to see more recently added items. If the user clicks on "See all", all recently added items will be shown in a list instead.



The user can both browse and search for items to rent. He or she can either go through the categories and subcategories by clicking in the list or use the search functionality in the action bar.

## RENT AN ITEM

All items that can be rented are represented as cards, containing content and actions for one single object in line with the *Material Design* guidelines.

Each card contains the name and price for one specific item that is available to rent. I decided to use cards because I wanted to show both information and a picture of the item to create a better browse experience.

When clicking on a card, it expands and reveals more information about the specific product as seen below.

The user can see all available information about the item on the same screen, and easily contact the renter to ask questions by clicking on the button "Contact renter".

← Scooters      ↗

**Electric Scooter**  
30 SEK / day

**Envy Colt Scooter**  
45 SEK / day

**Offroad Scooter**  
90 SEK / day

**Small Electric Scooter**  
35 SEK / day

Condition  
Used

Availability  
Shortest period to rent: 3 days  
Longest period to rent: 10 days

S	M	T	W	T	F	S
27	28	29	30	31	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

Rented out by

NAME  
Jane Doe  
ADDRESS  
Karlsgången 9  
148 00 Ösmo  
PHONE  
0739 - 884 35 78

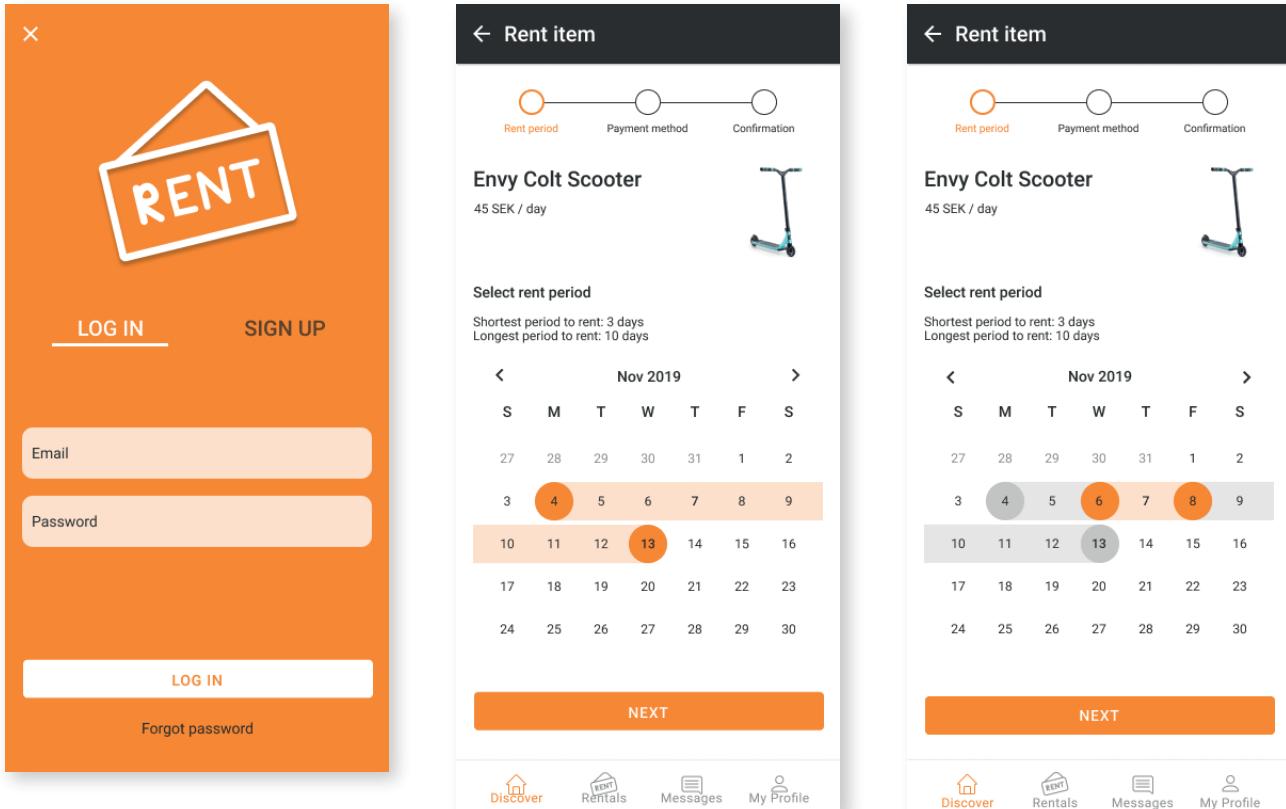
CONTACT RENTER      RENT

Discover      Rentals      Messages      My Profile

## RENT AN ITEM

When the user decides he or she wants to rent an item, they will either be redirected to log in (if they have not logged in previously) or they will be redirected to select a renting period.

I decided to not require the users to log in as soon as they opened the application, to give them a chance to realize if this application would provide value in their life or not. In this stage, the user has already committed and wants to rent an item, which makes it a better place to ask them to log in.



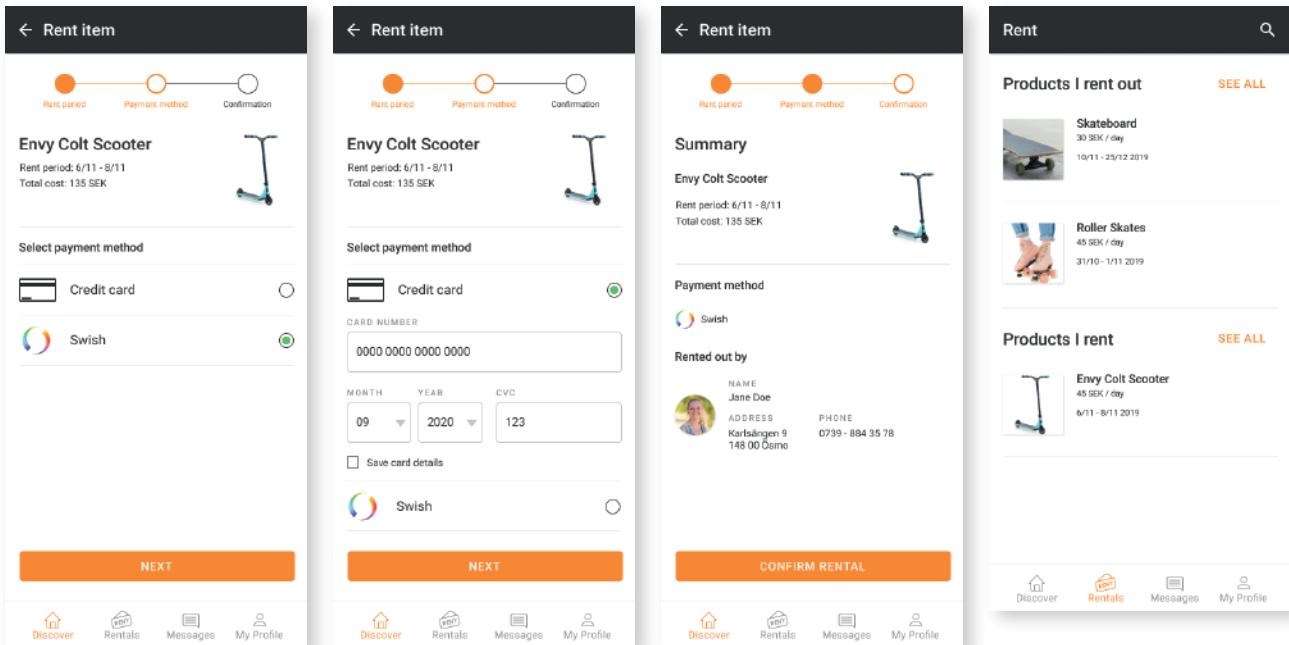
After logging in, the user can select a renting period as a first step in the wizard guiding the user through the renting process. I decided to use a Wizard to shorten down the information shown in each screen. It would be possible to have the complete renting process in one screen, but I believe this gives a better overview of the selected dates, price etc.

The user manually uses the date-picker to select between which dates they want to rent the product. The grey date-picker is representing the complete time that the product is available for rent.

## RENT AN ITEM

In the second step in the wizard, the user gets to select how they want to pay. The available payment methods are selected by the person renting out the item - perhaps they do not have Swish, and can only accept credit cards.

The user gets a summary of the rental before confirming. When confirming the rental, the user gets redirected to the tab "Rentals" and can see the recently rented product in the list.



The user selects the payment method by selecting one of the radio buttons. Radio buttons are good for listing two or more options that are mutually exclusive, i.e. the user should only be able to select one of them.

Since there is no clear definition in the English language of what a rental is (is it something I rent of someone else, or something I rent out to someone else) I decided to have two lists in the same bottom tab to make it clear to the user which is which.

# RENT OUT AN ITEM

From the "Discover" tab the user can add a new item to rent out by clicking on the floating action button. In line with the *Material Design guidelines*, the floating action buttons perform the most primary or common action on the screen, which is to add a new item.



Title

Description

**Condition**
NEW
USED
WELL USED

**Category**  
 Select category...

**Subcategory**  
 Select subcategory...

**Availability**  
SHORTEST PERIOD TO RENT  
 Select date...

LONGEST PERIOD TO RENT  
 Select date...

<	Nov 2019	>				
S	M	T	W	T	F	S
27	28	29	30	31	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

**Accepted payment methods**

 Credit card

 Swish

RENT OUT

 Discover
 Rentals
 Messages
 My Profile



Envy Colt Scooter

I'm selling my scooter because I don't ride it any longer. I've used it every day for the past 5 years, so it has a few scratches, but is still the most amazing scooter I have had. Feel free to contact me if you have any questions. Cheers!

**Condition**
NEW
USED
WELL USED

**Category**  
 Bikes and scooters

**Subcategory**  
 Scooters

**Availability**  
SHORTEST PERIOD TO RENT  
 4 days

LONGEST PERIOD TO RENT  
 10 days

<	Nov 2019	>				
S	M	T	W	T	F	S
27	28	29	30	31	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

**Accepted payment methods**

 Credit card

 Swish

RENT OUT

 Discover
 Rentals
 Messages
 My Profile

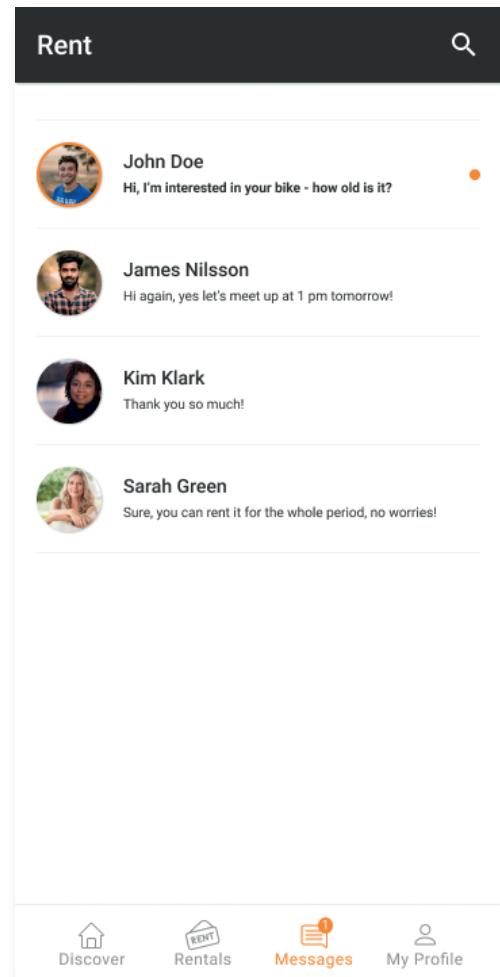
14

## MESSAGES

I decided to add the functionality for users to message each other in order to make it possible for the user to interact with each other throughout the renting process.

When there is a new message or an unread message, the conversation is moved to the top and the user's picture is highlighted with an orange stroke and an orange dot, in order to highlight that conversation and make it stand out from the other conversation.

When there is a new message, the bottom navigation icon for message includes a badge in the upper right corner, showing how many new messages there are.



**John Doe**

ADDRESS  
Karlsängen 9, 148 00 Ösmo

PHONE  
0739 - 884 35 78

EMAIL  
john@doe.com

## PROFILE

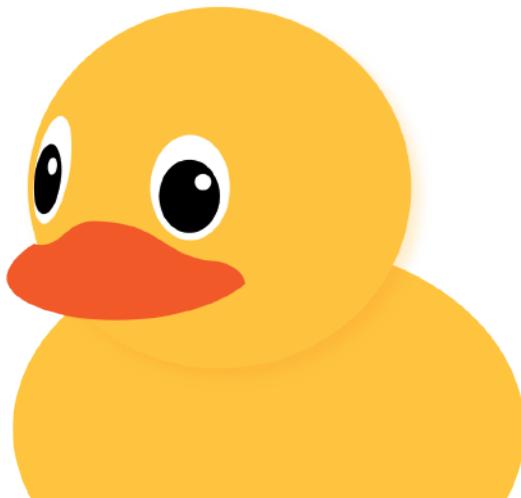
When signing up to use the application, the user creates an account with information such as address, phone and email. In the profile tab, the user can edit the personal information and profile picture.



# THE DUCKY PROJECT

A smart, tangible user interface to facilitate the bathing preparation experience.

Spring 2019



## THE PROBLEM

Design and create a prototype of a novel tangible user interface (TUI) in the course *Tangible Interaction*.

The task was to create a novel, tangible user interface of our choice. The idea was to create a TUI to help parents prepare well-tempered baths with bubbles for their children - without having to be inside the bathroom.

## TIMELINE

4 weeks

## THE TEAM

Designers  
Developers

## TOOLS

Illustrator  
Arduino  
Wemos

## MY ROLE

Designer and Developer.

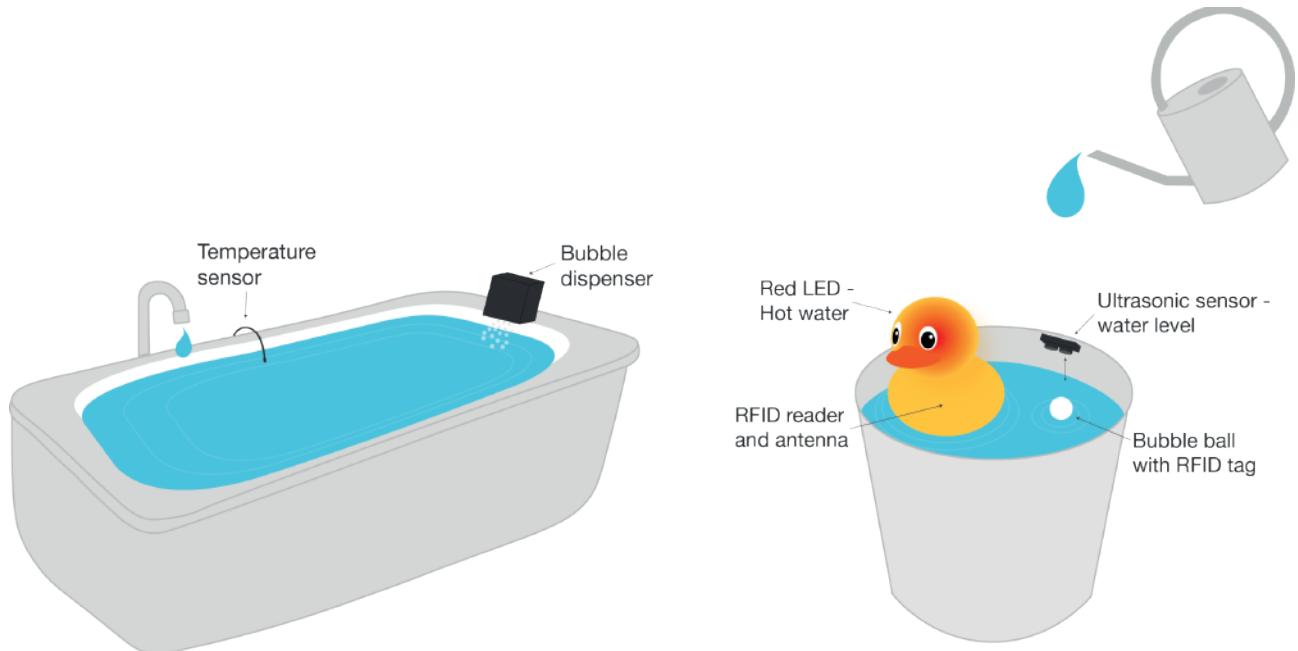
We were a team of 6 Interaction Design students where everyone both participated in designing and implementing the prototype together.

## WHAT I DID

Graphical design  
Coding  
Connecting and drawing circuits  
Soldering  
Scenario

## CONCEPT

The Ducky Project consists of two parts - the bathtub and the ducky container. The user can prepare the bathtub by modifying the ducky container. This can be done anywhere, not necessarily in the bathroom, since the bathtub and the ducky container are connected via WiFi.



### WATER LEVEL

The user determines the desired water level in the bathtub by pouring water into the ducky container - if the user fills half of the ducky container, half of the bathtub will be filled.

### TEMPERATURE

The rubber duck shows if the temperature of the water in the bathtub is hot or cold by lighting up a red LED for hot or a green LED for cold.

### BUBBLES

The user can place the bubble ball on the back of the rubber duck to fill the bath with bubbles.

## USE CASES

As a user I want to be able to check if the water is hot or cold.

As a user I want to be able to control the level of water in the tub without being in the bathroom.

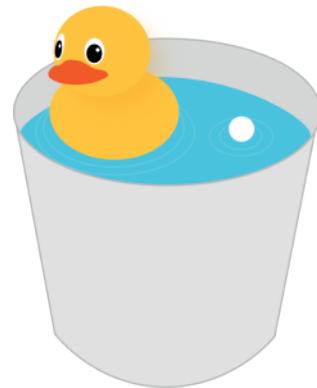
As a user I do not want to worry about water overflowing from the tub.

As a user I want to be able to add bubbles to my bathtub.

As a user I want to be able to prepare a bath, without being in the bathroom.

## SCENARIO – KIM THE KID

Kim does not want to take a bath. To make the experience more fun Kim's parents have bought the Ducky Project. They place the ducky in the accompanying container and fill it halfway with water - they can hear that the bathtub starts filling up! When they add a small ball to the container, bubbles are dispensed to the bathtub, how fun! Now Kim wants to take a bath!



## PROCESS

The original idea of the Ducky Project was developed through ideation. Crazy8 and brainstorming were the main ideation techniques that were used at this stage. Through ideation, several different project ideas were presented, but after evaluation of the potential project ideas and much discussion, the Ducky Project was chosen mainly due to its novelty.

The project thereafter focused mainly on the implementation of the TUI - deciding how to implement the system, which components were needed and how the components would communicate with each other.

# PROTOTYPE

## WATER LEVEL

The water level of the ducky container is read by an ultrasonic sensor, which determines if the ducky container is half-filled, or filled to its full capacity. When the ducky container is filled to the desired level, the bathtub will be filled to the same level by a pump.

## BUBBLES

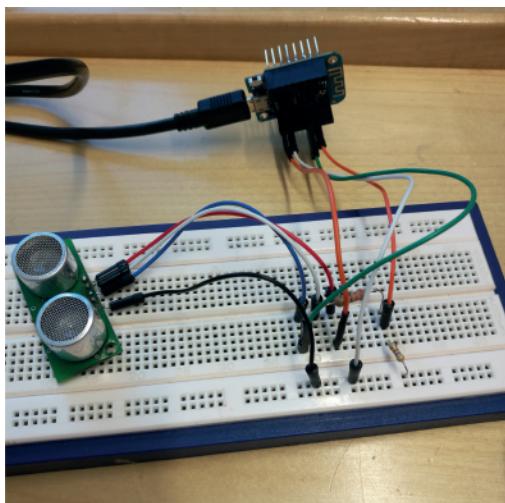
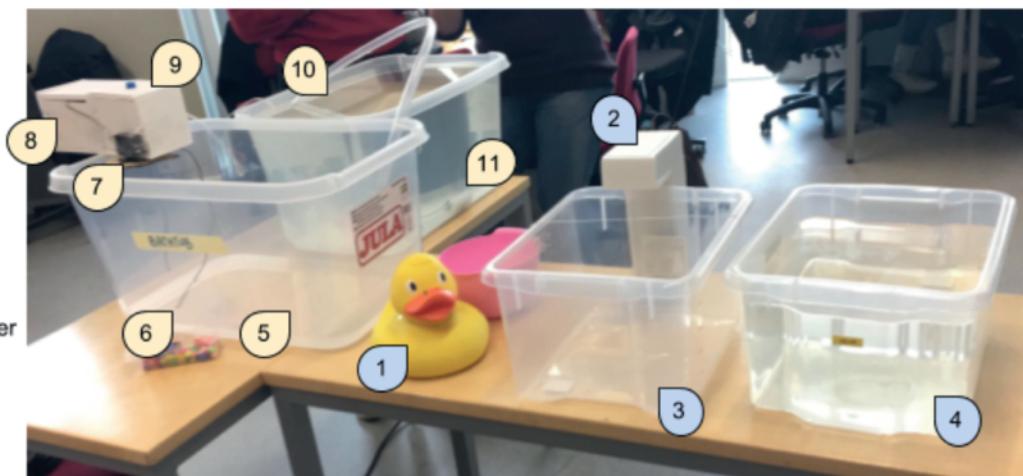
The bubble ball is a ping pong ball containing an RFID-tag and the ducky itself contains an RFID reader and antenna. The RFID-tag is scanned by placing the bubble ball on the back of the rubber duck. This action sends a message to a dispenser on the bathtub that will provide bubbles in the bath.

## TEMPERATURE

The temperature of the water in the bathtub is read by a temperature sensor and then displayed by lighting up a red or green LED - red for hot, green for cold.

The Ducky Container  
1. Rubber Ducky  
2. Ultrasonic Sensor  
3. Ducky Container  
4. Water Reserve

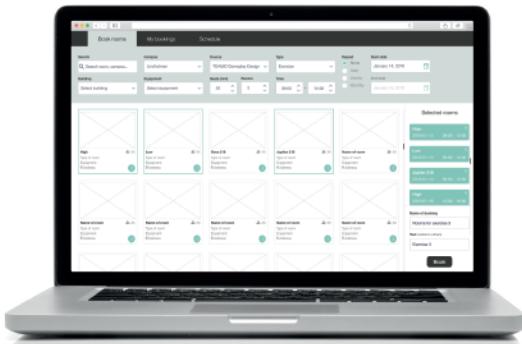
The Bathtub  
5. Bathtub  
6. Temperature Sensor  
7. Servo Motor  
8. Electronics Housing  
9. Bubble Bath Dispenser  
10. Water Reserve  
11. Submersible Pump



# ROOM SCHEDULING SYSTEM

A room scheduling system for universities  
- both student and teachers.

Winter 2018



## THE PROBLEM

In the course *Graphical Interfaces* I was faced with my first individual project during my master studies. I was to design a system for scheduling and room booking for both students and teachers at a university. This included everything between booking a small study room for a one-hour meeting to scheduling an entire course lasting for eight weeks.

Requirements such as a smart filtering function, being able to book several rooms at the same time as well as finding one's bookings were set up from the beginning by the course's teachers.

## TIMELINE

3 weeks

## THE TEAM

Me, myself and I

## TOOLS

Figma

## MY ROLE

Researcher and Designer.

As this was an individual, I both conducted user research and designed the solution.

## WHAT I DID

Interviews  
Scenarios  
Ideation  
Low-fidelity prototype  
High-fidelity prototype  
Wireframes  
Usability testing

## LEARNINGS FROM USER INTERVIEWS

The most common task among the students was to book study rooms for group projects. The most important aspect when booking study rooms was to filter on location and university building as well as how many people the study room was adapted for.

The most common task among teachers was to book rooms for a full course. It was important for them to know the room's equipment and location - if they, for example, wanted to book three nearby rooms for an exercise session where all rooms required a projector.

It was also important for the teachers to see pictures of the lecture halls or room to decide for themselves if it would be appropriate for their teaching or not.



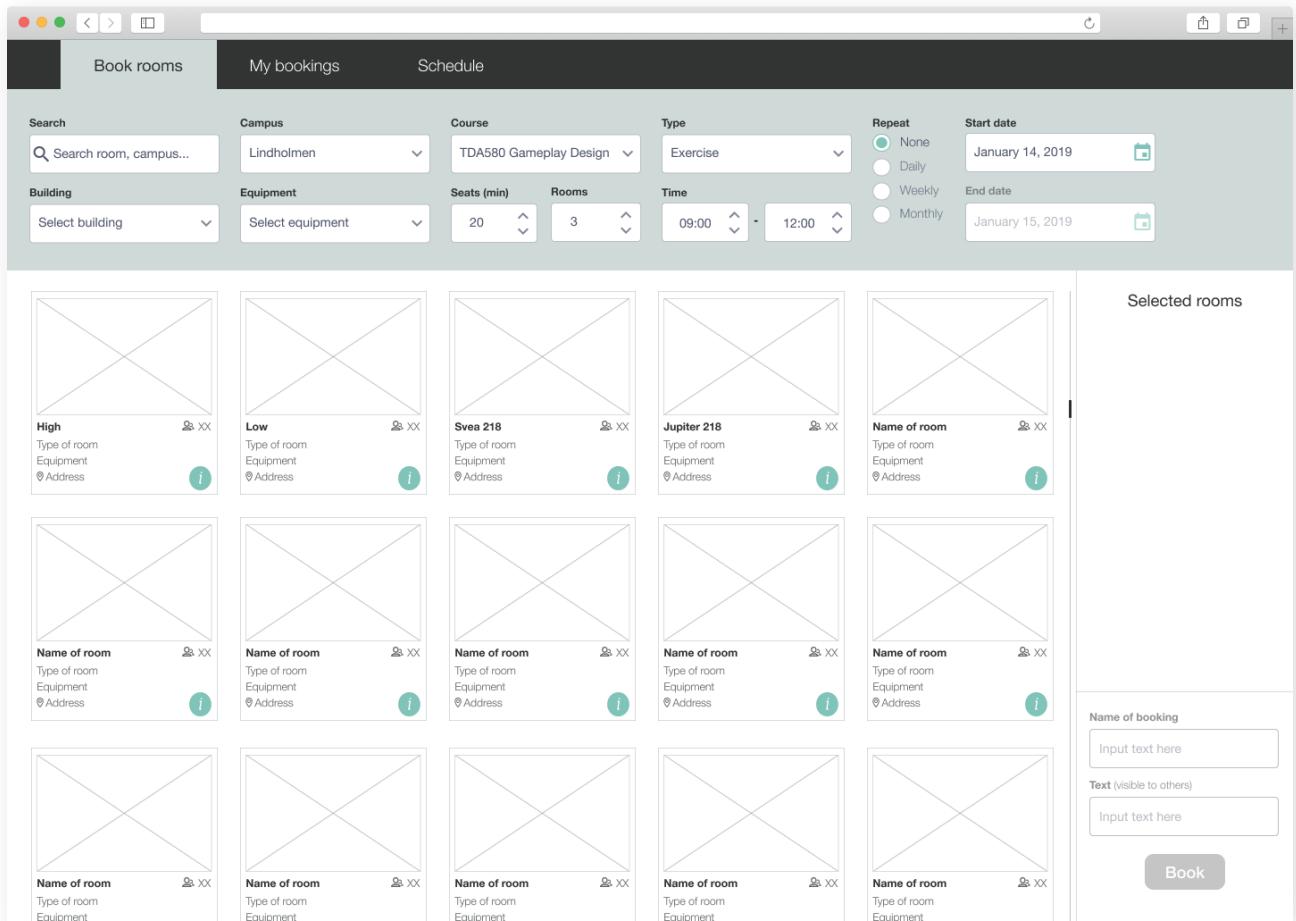
## DEFINING THE TASK

Through scenarios and use cases I defined the task by creating requirements for the required functionality for the two groups of users. I decided to keep the designs for the two users groups separate since the teachers desired an extensive amount of more functionality than the students.

ALL USERS	TEACHERS	STUDENTS
Map and directions	Book all types of rooms	Book study rooms
Filter on equipment, campus, building and seats to find a suitable room	Filter on course, type of teaching	Preliminary booking
See one's own bookings and filter among them	Book several rooms at once	
See schedule of courses and rooms	Book nearby rooms	
See if equipment is broken	Repeat booking - book the same room, the same weekday and time for a complete course	

## SOLUTION

Through ideation and prototyping the shape of brainstorming, sketching, feedback sessions with other students, supervision and wireframing this was the final result, presented at the end of the course.



## TEACHER - START PAGE

The three tabs in the header are used to navigation between the three high-level activities in the system - *Book rooms*, *My booking* and *Schedule*.

The users find appropriate rooms to book by selecting the desired settings in the top menu - they can filter out appropriate rooms depending on campus, course, type of teaching, building, equipment and the minimum amount of seats. They can select how many rooms they want to book when the booking should start and possibly end as well as how often they wish to repeat the booking.

The interviews with teachers revealed that they tended to book the rooms that they had close by their office or rooms that they were already familiar with. The system nudges the users to book other rooms than they might usually do, by suggesting the most appropriate rooms in the top of the grid to help the teachers explore new opportunities.

## STUDENTS - START PAGE

The design of the start page for students is the same, however, the students can only filter on campus, building, equipment, seats as well as time and date. They can not filter on course, type of room nor repeat their booking.

## ALL USERS - BOOK ROOM(S)

The user books a room through selecting the desired room(s) and then confirms the booking on the right side of the screen by entering a name for the booking as well as text that is visible for others.

This wireframe illustrates the initial step of booking rooms. At the top, there are search filters for 'Search', 'Campus' (Lindholmen), 'Course' (TDA580 Gameplay Design), 'Type' (Exercise), 'Repeat' (None), and date range ('Start date: January 14, 2019', 'End date: January 15, 2019'). Below these filters is a grid of room slots. Each slot contains a room name (e.g., High, Low, Svea 218, Jupiter 218), room details (Type of room, Equipment, Address), and a small info icon. To the right, a 'Selected rooms' panel shows three bookings: 'High' (2019-01-14, 09:00 - 12:00), 'Low' (2019-01-14, 09:00 - 12:00), and 'Jupiter 218' (2019-01-14, 09:00 - 12:00). At the bottom right are input fields for 'Name of booking' and 'Text (visible to others)', followed by a 'Book' button.

When the rooms are booked, the user gets a confirmation of the booking with a summary of the booked rooms.

This image shows the confirmation screen after booking. It displays a success message 'Your booking was SUCCESSFUL!' with a green checkmark. Below this, a summary table provides details: Date (January 14, 2019), Room (High), Time (09:00 - 12:00), Course (TDA580 Gameplay Design), Type (Exercise); Date (January 14, 2019), Room (Low), Time (09:00 - 12:00), Course (TDA580 Gameplay Design), Type (Exercise); Date (January 14, 2019), Room (Jupiter 218), Time (09:00 - 12:00), Course (TDA580 Gameplay Design), Type (Exercise). A note says 'You can access the details and edit the booking under the tab My bookings.' To the right, the 'Selected rooms' panel and booking inputs are visible.

## ACCESSIBILITY

By filtering on course, the system should be smart enough to know which students are participating in that course. The teacher thereby does not need to worry about accessibility issues such as stairs or lack of elevator.

## ALL USERS - MY BOOKINGS

In the tab "My bookings" both teachers and students can see the bookings they have completed. They can see all details of each booking by expanding the row, as well as a map with directions to the room.

Date	Time	Course	Room			
January 16, 2019	08:00 - 10:00	TDA580 Gameplay Design	Windows Seminar room Whiteboard - Projector			
				<span style="color: green;">Edit booking</span>		
January 17, 2019	09:15 - 10:30	Beta	Supervision	Supervision		
January 17, 2019	10:30 - 13:00	Beta	Lecture Web Design	TDA580 Gameplay Design	Lecture	Lecture
January 18, 2019	09:00 - 12:00	High	Workshop Apps	TDA493 Graphical Interfaces	Workshop 2	
January 18, 2019	09:00 - 12:00	Low	Workshop Apps	TDA580 Gameplay Design	Workshop 2	
January 21, 2019	09:00 - 12:00	High	Rooms for exercise 4	TDA580 Gameplay Design	Exercise	Exercise 4

8:00 - 10:00	Windows	Rooms for exercise 3	TDA580 Gameplay De
Time	08:00	Course	
Text visible to others	Exercise 3	Type	
08:30			
09:00			
09:30			
10:00	<b>10:00</b>		
10:30 - 12:00	Beta	Vision	TDA493 Graphical Inte
09:00 - 12:00	High	Workshop Apps	TDA493 Graphical Inte

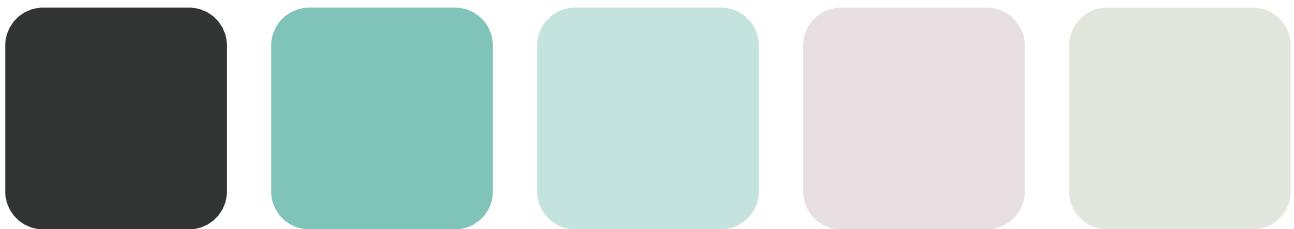
The users can also edit or delete the booking by using the icons down on the right side. If a user wants to change the time of a booking - only the available times are enabled in the dropdown to decrease excise. An improvement of this would be to edit a set of bookings - perhaps all bookings for a course or similar.

When a booking is deleted, it is possible to restore the booking within the next 15 minutes through the "Recently deleted" dropdown.

Recently deleted		
<b>Windows</b>	2019-01-16	
Rooms for exercise 3	08:00 - 10:00	
<b>Windows</b>	<b>Click to restore</b>	2019-01-16
Rooms for exercise 3		08:00 - 10:00
Exercise 3		

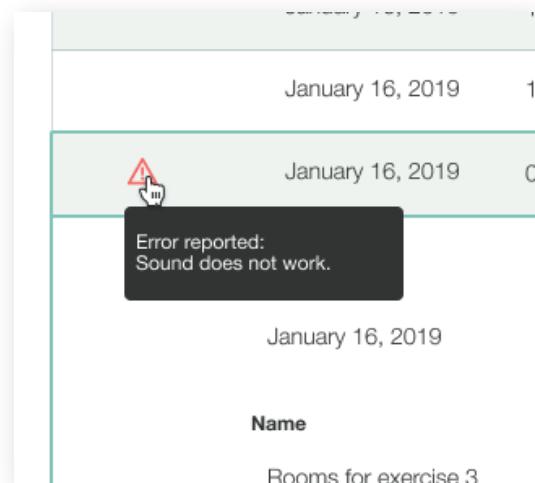
## ALL USERS - SCHEDULE

In the tab "Schedule" both teachers and students can search for a schedule of specific courses and rooms. An improvement of this screen would be to add a day view and not only a week view.



## PROBLEM/BUG IN ROOM

If there's something wrong with the equipment in the room, the users can see a red triangle in the booking. The error message is displayed while hovering, and the user can thereafter choose to book another room instead.



## KEY LEARNINGS & FUTURE WORK

Challenging to work on my own.

Being used to discuss ideas and decisions with others made it challenging to decide everything on my own for the first time - but at the same time, it made the project more fun!

Inspiration is good - but also a limitation.

Researching other scheduling systems felt like a great idea in the beginning - but it also limited my ideas. I had to push my ideas outside of the box (finding inspiration from other websites such as Airbnb and online clothing stores) to find my solution.

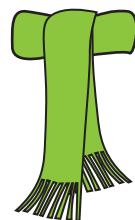
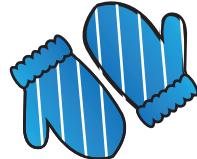
Mobile?

Would be fun to create a mobile version of these wireframes as well.

Sketching vs Look and feel.

It was tempting to focus on the look and feel early in the project because I started creating wireframes a bit too early. I think the solution would be even better if I had continued sketching and finished the complete flow on paper before creating it in Figma.

# SURVIVING THE SWEDISH WINTER



A board game with the goal to survive the dark and cold winter in Sweden.

Autumn 2018

## THE PROBLEM

In the course *Gameplay Design* one group project was to design and create our own board game.

Because many of our classmates were experiencing their first autumn and winter in Sweden, the common lunch topic was how cold and dark it had become in Sweden, which resulted in the game idea and concept. The game was supposed to be for four players and take approximately 20 minutes to play.

## TIMELINE

2 weeks

## THE TEAM

Designers

## TOOLS

Illustrator

## MY ROLE

Game & Graphic Designer.

We were a team of 6 Interaction Design students, where everyone participated in creating the gameplay design by using the MDA-model and the i\*-model as well as creating the prototype.

I designed the game cards in Illustrator.

## WHAT I DID

Rapid prototyping  
Paper prototyping  
Models using different tools and methods  
Graphical design  
User testing

## CORE GAMEPLAY

The game is set during a really harsh Swedish winter. The players are tourists who travel with their travel guide from the south of Sweden to the north and the famous tourist spot called Treriksröset. Since it is winter the weather outside is really cold and gets colder the further north the tourists go. Therefore, they must dress properly to survive, but they cannot just dress however they want because if they dress too warmly they will overheat instead of freezing to death.

Some of the tourists might not have understood how the weather in Sweden is like so they did not pack very well, some tourists might have brought their bikini for example. There is also a catch, during their journey the tourists cannot find any laundry machines so when they have worn their clothes, the clothes are so dirty that they have to be thrown out.

During the tourists' journey, they will also learn more about Sweden and the culture, by learning the Swedish word "lagom" and learn why everyone wants to "fika" with them.

So, to survive the harsh weather, the tourists have to dress accordingly. If they get too warm or too cold they will die. To put on clothes, players play clothing cards from their hands to try to negate the temperature outside. Examples of cards are sunglasses (worth 1 degree of celsius) and jackets (worth 10 degrees of celsius).

Clothes can also be worth style points by matching them correctly: after all, you want to look your best as you travel through Sweden. The player with the most points or the last man standing is the winner.

The game is made up of three rounds. Each round one weather card is pulled from the weather card deck and the card is discarded when the round is over. These cards affect the weather outside, decreasing or increasing the temperature. The effects of the weather card apply to the weather temperature and thus it does not alter any of the player's body temperatures.

Once the weather card has been placed, each player gets to draw one event card in turn from the event cards deck. These cards will affect each player individually but some can also allow you to interact with other players, e.g. stealing cards or increasing/decreasing another player's body temperature. Event cards can, therefore, adjust the number of cards a player has on hand while some of them can instead directly affect the player's own body temperature.



## RAPID PROTOTYPING

Our first session working on this game, we sat down and created a rapid paper prototype to develop the mechanics and dynamics of the game. We decided that the game should be set during a harsh Swedish winter. The inspiration came from classmates originating from countries outside of Scandinavia who were shocked when winter came and they realized how dark it is here in Sweden.



## FIRST CONCEPT

The first concept of the game was a survival game which consisted of 3 rounds. In the game, the players would pass through the 3 different regions of Sweden in the wintertime and try to keep their body temperature at 37 degrees despite the different weather conditions. The players would travel from the south to the north of Sweden passing through the regions of the country while each region's base temperature would drop lower.

In addition to the weather drop, the players would draw event cards which would also affect the weather or the player's body temperature. After the final weather temperature for a region and final body temperatures for the round were determined the players would use the 12 clothing cards they received at the beginning of the game to bring their body temperature back to 37. In the last round, the player with the body temperature closest to 37 would win. When a player's body temperature exceeded 42 or fell under 32 they would die and be out of the game.

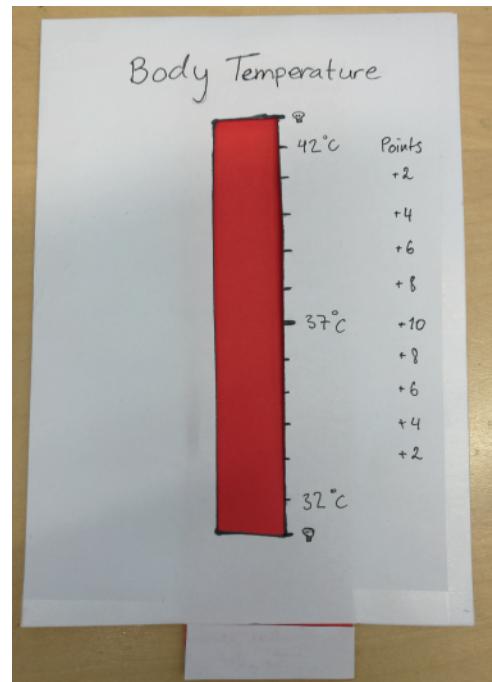
The game was evaluated iteratively through multiple self testing and user testing sessions.

## SELF TESTING 1 - VISUAL AIDS

During the first self-testing session of the game, we quickly realised that the game was heavy on math and could easily get confusing. This was not because the math calculations were complex but mostly because the relation between the outside weather temperature, the players' body temperatures and the protection given from the clothing cards was vague and there was a lot of numbers to keep in mind.

Therefore, we created paper thermometers. Four body temperature thermometers were created, one for each player so that the players could keep track of their body temperature, and one additional weather thermometer was created to keep track of the outside weather temperature.

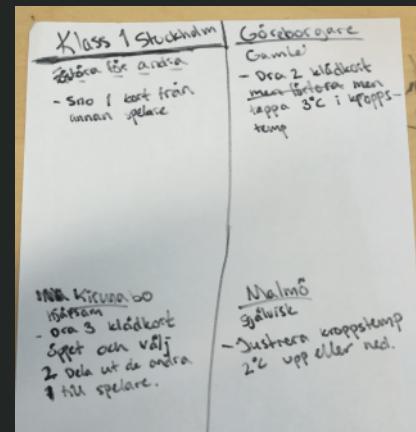
Although this did not decrease the number of math calculations in the game the thermometers were successful tangible visual aids which helped players remember the different numbers as well as the relation of the three variables.



## USER TESTING 1 - CHARACTERS

During the first confidential testing session, it became clear that the relation between the body temperature, weather temperature and clothing degrees was still not as obvious as we hoped. Following the feedback we received from the session, we separated the cards which affected the weather and the cards that affected the body temperature, calling them weather cards and event cards respectively. We decided that in each round one weather card would always be drawn - this way the base temperature of a region would always be affected by a weather card. The event cards would be incorporated the same ways as before, by each player drawing one at each round.

An additional problem was that the game was perceived as too random. If you did not get clothing cards with high protection you would simply not be able to survive. To make the game less random, we introduced characters to the game. Each player would have a certain character in the game and each character would have specific abilities which could be used once in the game. For instance, one character could draw two new clothing cards, but in return their body temperature would drop 3 degrees.



## USER TESTING 2 - TOO RANDOM

While the characters proved to give more control to the players in the second confidential testing, randomness still seemed to be the strongest pattern of the game. During this testing session a lot of feedback was received regarding how to decrease the randomness as well as make the game more complex, as the game was quite basic.

Among all the suggestions, a point system and style points were the alternatives that we introduced to the game. By introducing the point system the players could gain points depending on how close to 37 degrees their body temperature was each round. This would allow players to strategize about how they use their clothing cards during the entire game, instead of just the last round. As a result we believed that the players would become more engaged throughout the game.

Style points, which were bonus points that a player would gain if they matched clothes with the same pattern also allowed for a more strategic gameplay, decreasing the randomness and adding some complexity to the game.

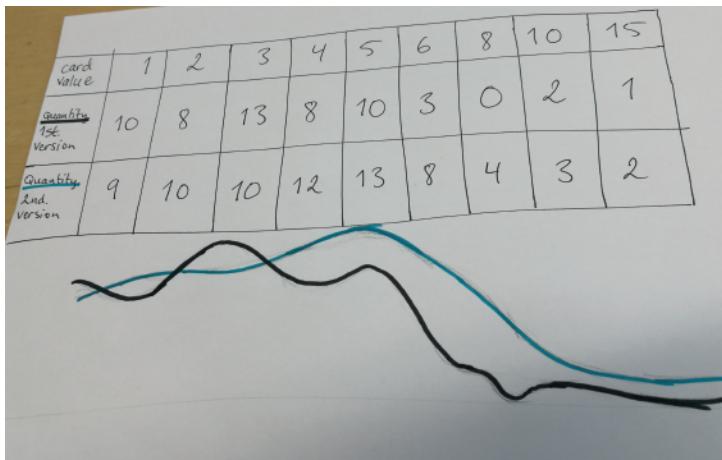


To implement the style points the clothing cards were remade. The cards used in previous stages simply consisted of the name of a certain clothing item and the protection it would provide against the weather. The new cards however, had images, colors and patterns. To add more complexity, specific rules were set which allowed only certain clothing cards to be combined.

For example a player could only combine several tops and undergarments but could not wear more than one pair of shoes at a time. To explain this rule in the game, different clothing categories were created. Each item's category was written on the card and color coded as seen in Figure 11 to help the players remember the possible combination options.

## SELF TESTING 2 - BALANCE

After the two confidential testing sessions and changes that followed, we self tested the game some more. During these self testing sessions the lack of balance in the game became very evident. Often the winner felt it was too easy to win the game while other players felt as though they were struggling, with no chance for a win from the start. To investigate the balance, the temperature degree distribution of the clothing cards was examined. This distribution showed to be fairly uneven. By adding more cards with higher degrees and removing cards with lower temperature degrees, the distribution became closer to the normal distribution.



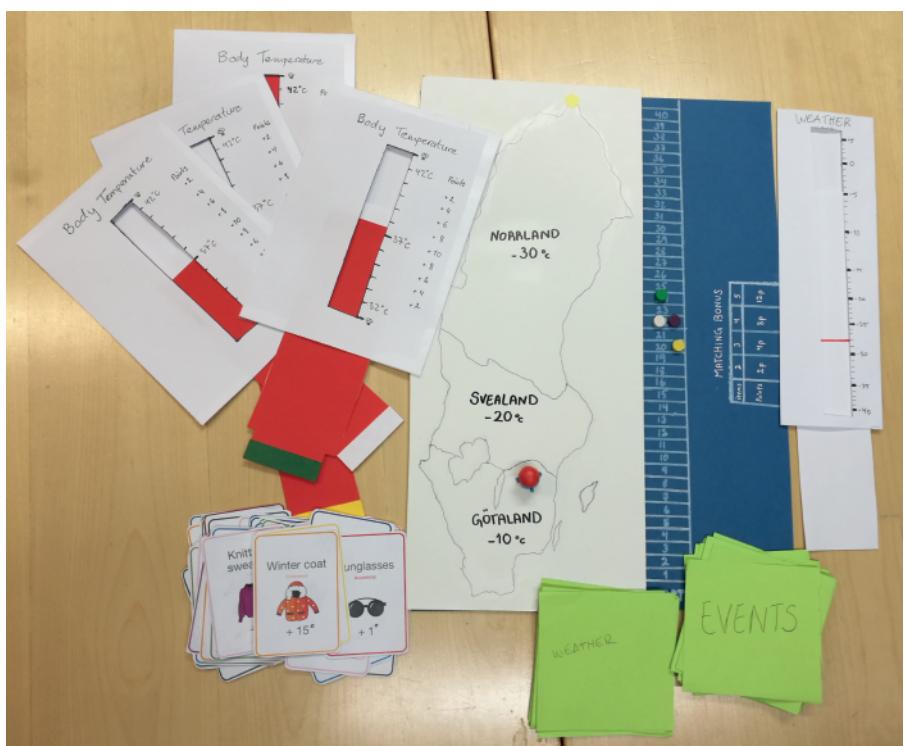
At this point, the characters from the self testing sessions were removed from the game because there seemed to be too many elements. It seemed to be a bit tricky for players to keep everything in mind and to remember that they had a special character ability as well.

## GAME SETUP

After iteratively developing the game, it was time to conduct two larger game tests with other students taking the same course.

The game setup to the right was used for the first game test.

*From left to right:*  
Body thermometers, Clothing cards, Game board,  
Weather cards, Event cards,  
Weather thermometer.



## FIRST PLAYTEST

### Confusing clothing cards.

The major conclusion from the first playtest was that the clothing cards were confusing. The players did not understand the different categories, and how to combine the various garments. Another aspect of the clothes were the patterns. The idea when creating the cards was to get variation and thus, for example the striped garments did not have the same stripes and color. This however lead to misunderstandings, because the players did not understand that all the different types of stripes could be matched.

### Solution.

The clothing cards were updated (see picture on the next page). The categories were removed, and the patterns were clarified. Several garments were removed, and instead the new version of the clothing cards only provide one type of bottom, one type of jacket etc. but with different points. All garments could be used together, but not several of the same garment. The new version of the clothing cards, developed after the first playtest, can be seen in Figure 10 and is the final version of the clothing cards.

### Too easy.

A suggestion brought up from many of the players were that the event cards should either be harsher or that the player should draw more event cards each round. This was to make the game more difficult, because almost all of the players believed it was too easy to stay put at 37 degrees each round, and the players thereby had a very similar score.

### Solution.

A second version of the events cards were made, with harsher instructions (for example the body temperature would drop 4 degrees instead of just 2 degrees) which were tested in the second playtest.

Another suggestion brought up from many of the players were to add a cooperative aspect in the game. One idea was that all players need to survive throughout the game, or else all players would loose (i.e. no player would win). The players would thereby need to trade resources with each other (the clothing cards) in order to help each other survive.

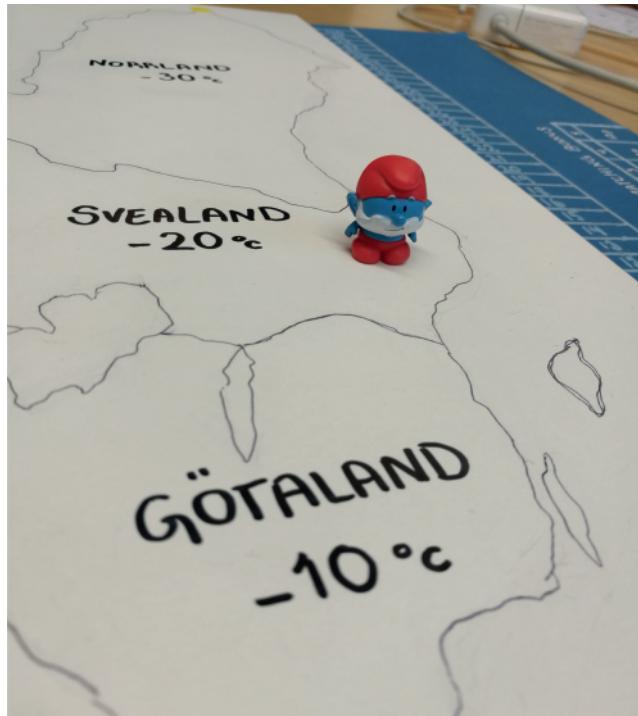
Since there was not much time between the two playtests, not all suggested improvements were tested. The cooperative aspect was not regarded at all due to time limits, as well as the fact that the attempted improvements should be measurable.



## SECOND PLAYTEST

The changes mentioned in the previous section were tested during the second playtest. The result of the changing the clothing cards, seen in Figure 5 was very positive. All players understood that all garments could be matched (but not the same garment twice) and understood the pattern matching much better.

The second version of the event cards were also tested, but it was shown that these cards were too harsh. The players died too early in the game, and it was too difficult to survive the last region Norrland. The second version of the event cards was therefore discarded, and the first version is the actual version used in the game.



Thanks for reading!

MAJA NYBERG

